Original Article

Aeitiological evaluation of Anaemia in one hundred patient admitted in a Tertiary Hospital

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Abstract

Anaemia is a condition where there is a lower than normal number of red blood cells (RBCs) in the blood, usually measured by decrease in the amount of hemoglobin (Hb)1. Anemia is a very common problem encountered in our clinical practice. So, knowledge about the aetiological pattern of anaemia of patients admitted in tertiary hospitals will help the clinician in planning investigations for early diagnosis and effective management of the patients. A cross sectional study was carried out over a period of 12 months in total 100 patients with severe anaemia having Hb level below 6 gm/dl admitted in tertiary care hospital. Result of this study was - Anaemia due to marrow replacement by haematological malignancies like leukaemia, lymphoma,multiple myeloma, myelofibrosis etc. were found to have highest incidence in this study (42%), Anaemia of chronic disorder 23%, Aplastic anaemia 12%, Haemolytic anaemia 9%, Iron deficiency anaemia 7%, Megaloblastic anaemia 4%, Anaemia due to acute blood loss 3%. It is concluded that in this study Heamatological malignancy appeared to most common cause of anaemia. Anaemia associated with chronic disorders were found to be the second most common causes of anaemia. Aplastic anaemia was the third most common in Tertiary Hospital.

Introduction

Anaemia is from the ancient Greek word, meaning "without blood".[2] Anaemia refers to a state in which the level of haemoglobin in the blood is below the normal range appropriate for age and sex.[3] The normal value of Hb in male is 13.5-17.5 (g/dl), in female is 11.5-16 (g/dl), haematocrit (PCV) in male is 0.4-0.54 (L/L), In female is 0.37-0.47(L/L).[4] A decrease in any of this values (Hb/Ht) is called anemia. They can be altered by the plasma volumes. Difference between women and men values are due to androgen hormones.[5] Anaemia can be caused by many things but three main bodily mechanisms that produce it are- i) Excessive destruction of RBCs ii) Blood loss, iii) Inadequate production of RBCs.[6]

Anaemia is not a diagnosis; it is a manifestation of an underlying disorder. So, even mild or asymptomatic anemia should be investigated so that the primary problem can be diagnosed and treated. Prevalence of anaemia among Bangladeshi population is still very high.[7] Iron deficiency anaemia is most common in women of child bearing age and they suffer from moderate to severe anaemia, but here only severe anaemia are encountered (Hb <6 gm/dl).

Materials and methods

The study was conducted with a cross sectional design and was carried out on Patients with anaemia admitted at the department of Medicine and Haematology in Bangabandhu Sheikh Mujib Medical University , Dhaka, over a period of 12 month from January to December 2008. The study was done by qualitative purposive sampling. Sample size total 100 patients.

Samples were selected from -

1) Patients who gave informed written consent.
2) Patients age more than 12 years, irrespective of their sex and education.
3) Patients with severe anaemia having Hb level below 6 gm/dl.
4) Clinical feature suggestive of anaemia.

History taking and physical examination and the other data were recorded in the structured form. Following investigations - Hb level, total and differential count of WBC, peripheral blood film, X-ray chest P/A view, stool routine examination, urine routine examination, serum creatinine, upper GIT endoscopy, Hb electrophoresis, Bone marrow study etc. were done to find out the aetiology and to exclude other diseases. All statistical analysis procedure were performed using the SPSS (Statistical Package for Social Science) 11.5 version. Data were analyzed using basic descriptive statistic.

Results

Table-1: Distribution of patients by cases of anaemia (n=100)

Diagnosis	No. of patients	Percentage (100%)
Anaemia due to Heamatological malignancy	42	42%
Anaemia of chronic disorder	23	23%
Aplastic anaemia	12	12%
Haemolytic anaemia	9	9%
Iron deficiency anaemia	7	7%
Megaloblastic anaemia	4	4%
Anaemia due to acute blood loss	3	3%

Table-2: Distribution of patients by causes of bone marrow malignancy (n=42)

Diagnosis	No. of patients	Percentage (100%)
Leukemia	32	76.2% AML
	12	37.5% ALL
	14	43.75 CML
	4	12.50% CLL
	2	6.25%
Multiple myeloma	5	11.9%
Lymphoma	2	4.76%
Myelodysplastic syndrome	2	4.76%
Myelofibrosis	1	2.38%

Table-3: Distribution of patients with anaemia of chronic disease (n=23)

Diagnosis	No. of patients	Percentage (100%)
Chronic renal failure	7	30.43%
SLE	6	26.09%
Abdominal malignancy	6	26.09%
Tuberculosis	3	13.04%
Chronic malaria	1	4.35%

Discussion

Study was done to find out the aetiological pattern of anaemia in these patients.WHO estimates the number anaemic people worldwide to be two billion and that approximately 50% of all anaemia can be attributed to iron deficiency.[8] In this study iron deficiency anaemia was found only in 7 (7%) cases because this study we consider severe anaemic patient (Hb<6%) and it was done in tertiary hospital. Anaemia due to marrow replacement were found to have highest incidence in this study (42%). Twenty three (23%) cases of anaemia of chronic disorder were detected, comprising second most common cause of anaemia in this study. Aplastic anaemia stands on third place (12%). Other causes of anaemia found in this study were haemolytic anaemia 9 (9%) cases, megaloblastic anaemia 4 (4%) cases and anaemia due to acute blood loss 3 (3%) cases.

In the present series,anaemia was found to be occurring in all the age groups from 2nd to 7th decade. Highest incidence was found in 2nd decade (24%) that is 20 to 29 years age group. This figure is well consistent with that of significantly good number of patients also belong to the 1st decade (20%), 4th decade (18%), 5th decade (16%), and 3rd decade (13%), 6th decade (9%). No patient below the age of 12 years was taken in this study.

In this series, among 100 patient 43 was male, 52 mas female, Male and Female ratio is 1: 1.08.

Among 42 cases of haematological malignancies 32 cases were leukemia (76.2%), 5 cases were multiple myeloma (11.9%), 2 cases were lymphoma (4.76%), 2 cases were myelodysplastic syndrome (4.76%), 1 cases was myelofibrosis (2.38%).

Among 32 cases of leukaemia , the incidence of ALL was highest 14 (43.75%), followed by AML 12 (37.5%), the incidence of CML was 4 (12.5%) and CLL was 2 (6.25%).

In this study 23 patients were found with anaemia of chronic disorder. Among them 7 (30.43%) were suffering from chronic kidney disease, 6 (26.09%) of them had SLE, 6 (26.09%) had abdominal malignancy, 3 (13.04%) had tuberculosis,1 (4.35%) had chronic malaria.

Among 12 cases of aplastic anaemia in this study no secondary cause was found. All causes (100%) were idiopathic, that is no identifiable causes were detected.

Among 9 cases of haemolytic anaemia in this study 8 (88.89%) were diagnosed as ß thalassaemia major, 1 (11.11%) was Hb-E disease.

Among 7 cases of iron deficiency anaemia 4 (57.1%) were due to inadequate iron intake, 3 (42.9%) were due to chronic blood loss from GIT.

Among 4 cases of megaloblastic anaemia 1 (25%) was due to gastric surgery, 3 (75%) causes of megaloblastic anaemia could not be identified because of lack of adequate investigation.

Among 3 cases of anaemia due acute blood loss 1 (33.33%) was due to NSAID induce gastric erosion, 2 (66.67%) were due to ruptured oesophageal varices.

Conclusion

In this study 100 hospitalized adult patients were studied to find out causes of anaemia. In this series leukemia appeared to most common cause of anaemia. Among the patient with leukemia majority had acute leukemias. Anaemia associated with chronic disorders were found to be the second most common causes of anaemia, of which chronic kidney disease was found to be the major offender. Aplastic anaemia was the third most common cause of anaemia. A good number of cases of iron deficiency anaemia, megaloblastic anaemia, congenital haemolytic anaemia, anaemia due to acute haemorrage were also detected.

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